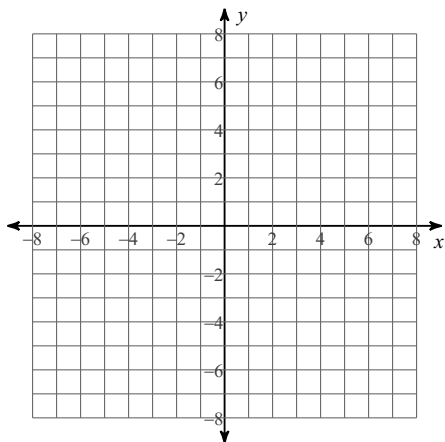


Unit 1 Day 8

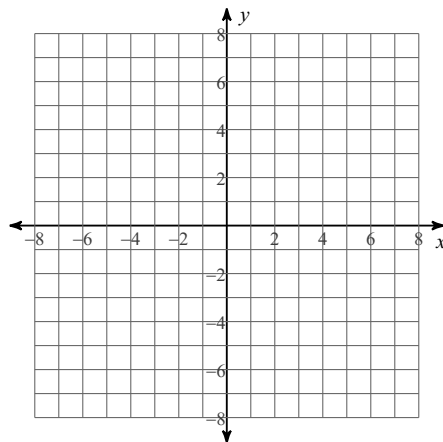
Date _____ Period _____

Sketch the graph of each function.

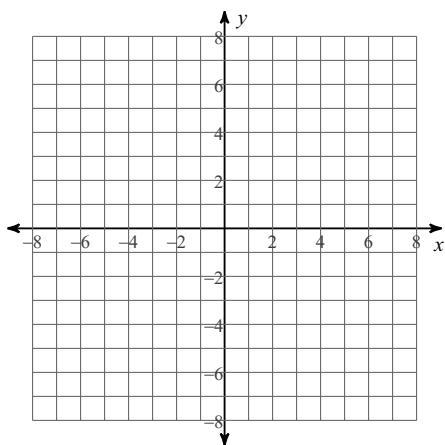
$$1) \ g(x) = \begin{cases} (x+4)^2, & x \leq -3 \\ (x+2)^2, & x > -3 \end{cases}$$



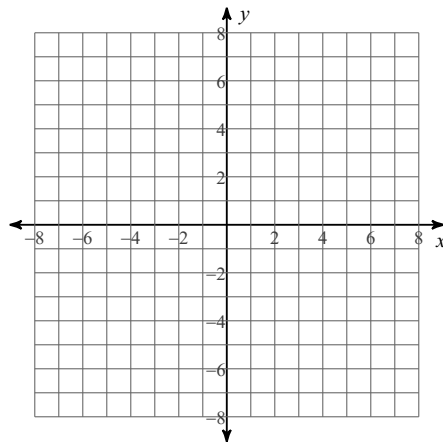
$$2) \ f(x) = \begin{cases} -1, & x \leq 0 \\ -x + 2, & x > 0 \end{cases}$$



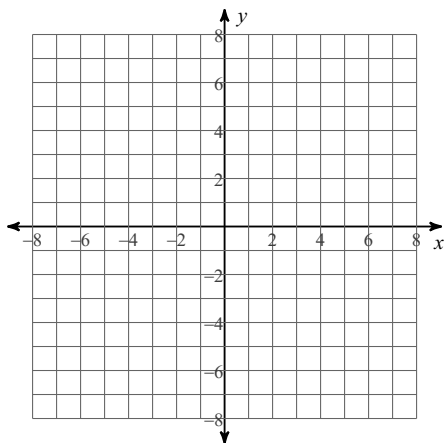
$$3) \ f(x) = \begin{cases} \sqrt{-3x}, & x < -4 \\ 2^x - 1, & -4 \leq x < 1 \\ (x-1)^2, & x \geq 1 \end{cases}$$



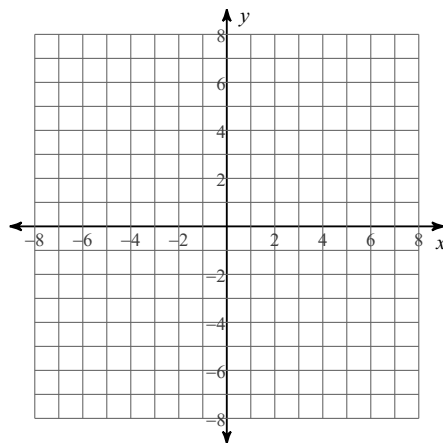
$$4) \ g(x) = \begin{cases} \sqrt{-x}, & x < -2 \\ 2|x|, & x \geq -2 \end{cases}$$



$$5) f(x) = \begin{cases} \sqrt{-3x}, & x \leq -4 \\ -x - 3, & -4 < x < 2 \\ \frac{1}{x} + 2, & x \geq 2 \end{cases}$$



$$6) g(x) = \begin{cases} -4^x, & x < -4 \\ |x| - 3, & -4 < x < 2 \\ (x - 3)^3, & x > 2 \end{cases}$$



Perform the indicated operation.

$$7) \begin{aligned} g(n) &= -n - 1 \\ h(n) &= 3n^3 + 4n \\ \text{Find } g(n) - h(n) \end{aligned}$$

$$9) \begin{aligned} h(x) &= 3x - 3 \\ g(x) &= x^2 - 4 + 2x \\ \text{Find } -2h(5) - g(5) \end{aligned}$$

$$11) \begin{aligned} f(n) &= n + 2 \\ g(n) &= 2n \\ \text{Find } (f \cdot g)(2n) \end{aligned}$$

$$8) \begin{aligned} f(x) &= x - 5 \\ g(x) &= 2x - 4 \\ \text{Find } f(x) \cdot g(x) \end{aligned}$$

$$10) \begin{aligned} f(x) &= x - 5 \\ g(x) &= x^2 + 2 \\ \text{Find } \left(\frac{f}{g}\right)(-3) \end{aligned}$$

$$12) \begin{aligned} f(a) &= -3a^2 + 4 \\ g(a) &= 2a + 5 \\ \text{Find } (f + g)\left(\frac{a}{2}\right) \end{aligned}$$

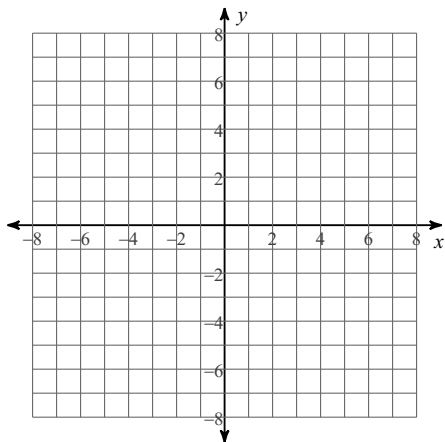
Describe the transformations necessary to transform the graph of $f(x)$ into that of $g(x)$.

$$13) \begin{aligned} f(x) &= \sqrt{x} \\ g(x) &= -\frac{1}{3}\sqrt{-x} \end{aligned}$$

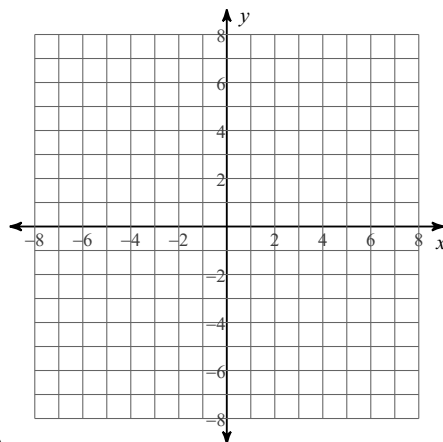
$$14) \begin{aligned} f(x) &= x^3 \\ g(x) &= -(x + 2)^3 \end{aligned}$$

Sketch the graph of each function.

$$15) g(x) = -\sqrt{-x} + 3$$

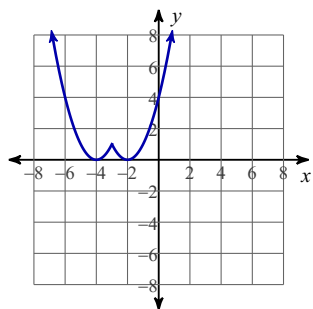


$$16) g(x) = -(3x)^3 - 2$$

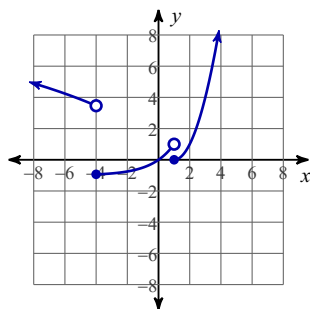


Answers to Unit 1 Day 8 (ID: 1)

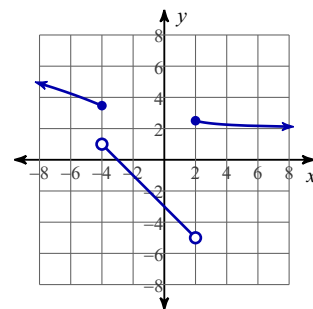
1)



3)



5)



7) $-3n^3 - 5n - 1$ 9) -55

13) reflect across the y-axis
compress vertically by a factor of 3
reflect across the x-axis

11) $8n^2 + 8n$

15)

